

**Influenza Threat Level:  
WHO Phase 3**

**Phase 3 Goal:** Ensure rapid characterization of the new virus subtype, & early detection, notification & response to additional cases.

**Reference:** [WHO Pandemic Phase](#)

**H5N1 Geographic Location**

- No current evidence of H5N1 within North, Central, or South America.
- The current regional position includes much of Asia, the Middle East, Europe, and portions of Africa.

**Overall Lab Surveillance**

**Total Specimens Collected**

- Collected in Week 23: 0
- Season Total: 3,084

**Total Influenza Isolates**

*Includes subtyped isolates*

- Influenza A: 473
- Influenza B: 226

**Total Isolates Subtyped**

- A/H1N1: 52
- A/H3N2: 288
- B/HongKong: 111
- B/Shanghai: 19

**Sentinel Site Surveillance**

**Specimens Collected**

- 2,499 specimens
  - 81% of total specimens
- 594 influenza-positive
  - 85% of total flu positives

**Participation Status**

- 43 of 46 sites participated
- Majority have completed questionnaires

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# DoD Global Influenza Surveillance Program: *Influenza Surveillance at AFIOH*

## Summer Report: Week 23

04 - 10 June 2006

### Current influenza season for Southern Hemisphere

#### Influenza (02 Oct - Present)

##### 699 influenza isolates

473 Influenza A; 226 Influenza B

25% of completed specimens were positive for an influenza virus: 17% influenza A; 8% influenza B.

##### Influenza A

A (H1N1): 52

A (H3N2): 288

A/Un-subtyped: 133

##### Influenza B

B (Hong Kong): 111

B (Shanghai): 19

B/Un-subtyped: 96

### Locations of AFIOH identified influenza viruses



Click [here](#) for an **animated map** that illustrates 2005-2006 isolates & subtypes over time.

### Vaccination Status for 2005-2006 Influenza Season

This season, 97% of the Active Duty Air Force, 94% of Air National Guard, and 84% of Air Force Reserve were vaccinated for influenza (as of 17 Apr 06). (*Data gathered by MILVAX*)

### WHO Update: Human Avian Influenza (H5N1); Total: 225 cases / 128 deaths

- **Indonesia:** MoH confirmed 49th case of human H5N1. Patient was a 15-yr-old boy from West Java Province. Symptoms developed on 24 May, hospitalized on 26 May and died on 30 May. See [WHO update](#).
- **Cumulative Cases/Deaths:** WHO has confirmed a total of 225 cases (57% fatality rate) since 2003. The following countries had WHO confirmed cases during 2006: Azerbaijan, Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, and Turkey. See [WHO update](#).
- See [WHO's situational update](#) for a detailed update.

### Influenza Outbreaks / News

At this time, AFIOH has not been notified of influenza outbreaks at any of the MTFs.

### AFIOH Report Overview

This report summarizes the status of all respiratory viral cultures processed at the AFIOH laboratory. For more background information, please see page 4 of this report.

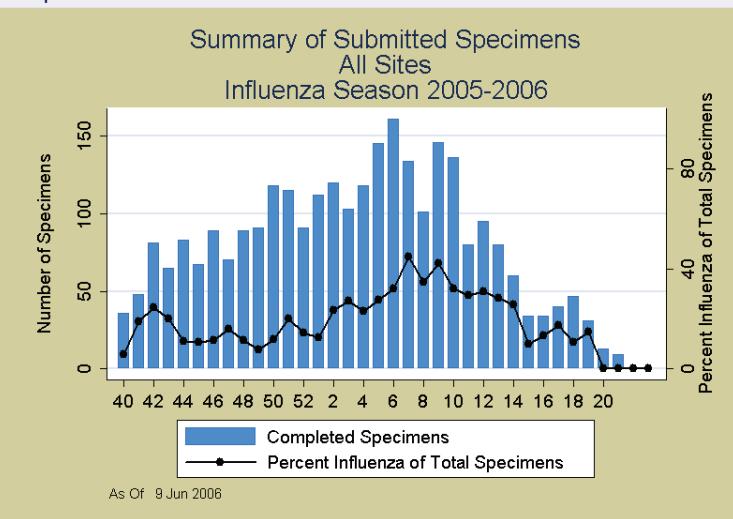
**Overall Laboratory Surveillance**

MAP: Geographic coverage of DoD Influenza Surveillance\*

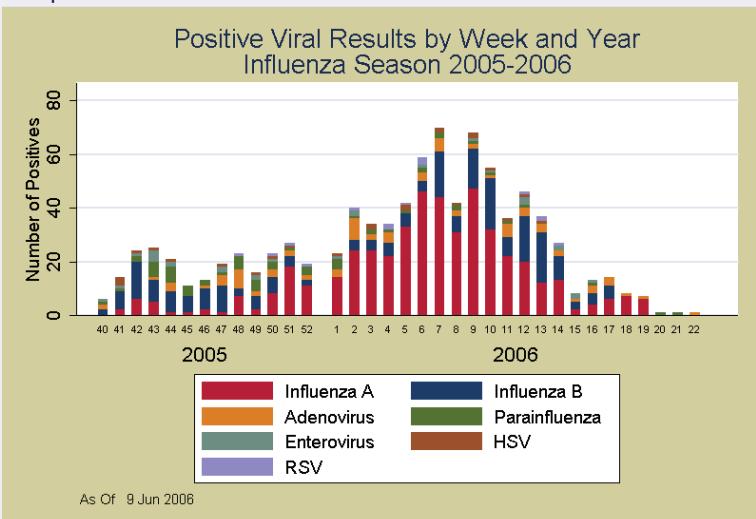
**Week 23 overview.** At this time, 1 site (non-sentinel) has shipped 7 specimens that were collected from patients during Week 23. See map to right. All specimens have pending results at this time.

**Season overview.** Since 02 October 2005, 79 sites (42 sentinel and 37 non-sentinel) have submitted a total of 3,084 specimens to the AFIOH laboratory. Of these, 91% (n=2,817) have a completed result, with 25% (n=699) positive for an influenza virus (Graph 1): 17% influenza A; 8% influenza B. Furthermore, 2% (n=61) were positive for parainfluenza, 3% (n=80) were adenovirus, 1% (n=28) were enterovirus, 0.9% (n=24) were HSV, and 0.5% (n=15) were RSV and 0.03% (n=1) was Mumps (Graph 2). The specimen positive for mumps was collected from a non-DoD beneficiary seen at a sentinel site located in Peru (NMRC-D).

Graph 1



Graph 2



**Influenza Subtype and Sequence overview.** All influenza isolates have been typed, and the AFIOH laboratory plans to subtype all OCONUS isolates and a portion of CONUS isolates. Of the 699 influenza isolates, 67% (n=470) have been subtyped: **288 influenza A/H3N2, 52 influenza A/H1N1, 111 influenza B/Hong Kong, and 19 influenza B/Shanghai** (Graph 3).

Five (10%) of the A/H1N1 sub-typed isolates have been sequenced and there are notable genetic differences compared to the currently used influenza A/New Caledonia/20/99 vaccine strain. These isolates were collected from Qatar, Kuwait, and Korea. Additionally, several H3N2 sub-typed isolates have been sequenced and appear to closely match the vaccine strain.

*The following information is gathered from the Influenza Surveillance Questionnaires submitted primarily by sentinel sites.*

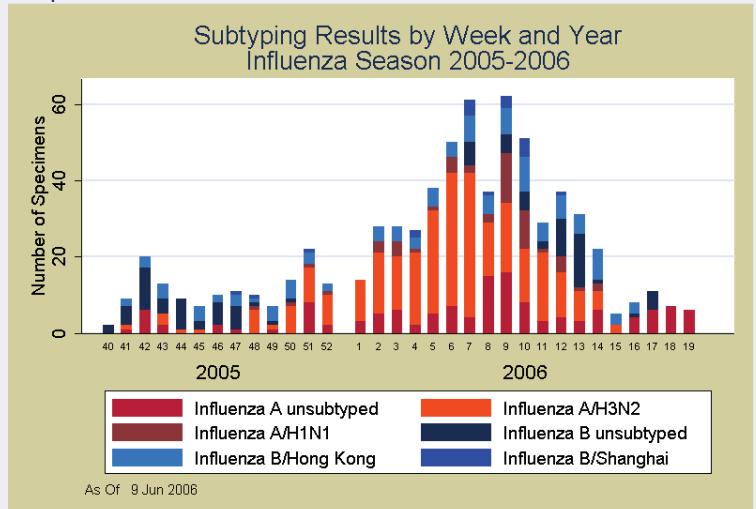
**Vaccine Effectiveness.** Vaccination status was identified in 35% (n=247) of the patients positive for influenza. Of these, 40% (n=98) were vaccinated > 2 weeks prior to infection (1 patient was vaccinated 2 days prior to infection). Isolates from these patients have been sub-typed as H3N2 (n=31), H1N1 (n=8), and B Hong Kong (n=2).

**Hospital/Quarter status.** Four patients positive with influenza were hospitalized (1 vaccinated patient positive for influenza B and 3 unvaccinated patients positive for influenza A). Additionally, 40 patients positive with influenza were placed on quarters (30 vaccinated patients [12 un-subtyped A, 13 A/H3N2, 1 A/H1N1, and 4 un-subtyped B] and 6 unvaccinated patients [2 un-subtyped A and 4 A/H3N2]).



\* As determined from specimen submissions. Although an entire location is highlighted, surveillance may be limited in scope

Graph 3

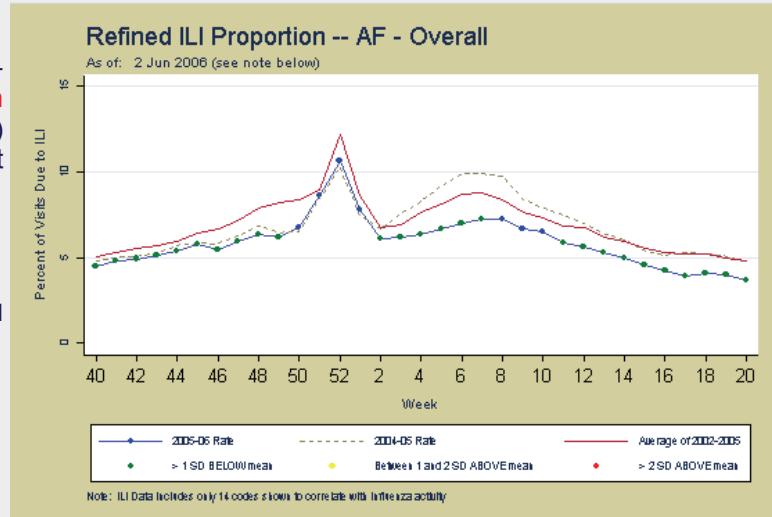


## Influenza-Like Illness (ILI)\*

**Overview.** As of 02-June-06. Influenza-like illness (ILI) activity among Air Force MTFs has remained notably lower than the average for Week 20, and is 1 standard deviation (SD) below the mean. The SD is calculated weekly. It is important to note that data may vary from next week's graph.

\*Influenza-like illness (ILI) activity is gathered from the Standard Ambulatory Data Registry (SADR). The data are cleaned and a summary total of ICD-9's that match a smaller, but more specific and sensitive list of ICDs than is in the ESSENCE tool, are presented (Graph 3). The Surveillance Team at AFIOH are in the process of creating a DoD-wide ILI graph.

## Graph 4. ILI Activity among Air Force MTFs



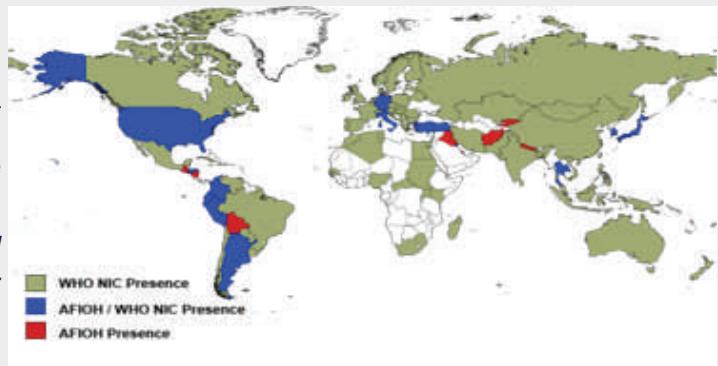
## Contributions to National and Global Influenza Surveillance

**It is important to note that although a country is highlighted, surveillance may be limited in scope.** AFIOH provides surveillance data from 21 countries - 8 countries (Bolivia, El Salvador, Guatemala, Iraq, Kyrgyzstan, Nepal, Nicaragua, and Qatar) are not otherwise included in the current WHO network.

*Note: Map describes countries submitting specimens to AFIOH and does not include all DoD contributing countries (i.e., NAMRU-2 and NAMRU-3 surveillance described on page 7).*

### Data Sharing

AFIOH electronically reports data to CDC using the Public Health Laboratory Information System (PHLIS). The data shared is incorporated into WHO's and CDC's influenza surveillance summaries. Additionally, data from Texas military sites are reported to the Texas Department of State Health Services (TDSHS).



## CDC / WHO Influenza Surveillance

CDC reports influenza activity up to Week 20. Please refer to the CDC and WHO websites for an overview all weekly reports up to Week 20.

1. National Influenza Activity (CDC): <http://www.cdc.gov/ncidod/diseases/flu/weeklychoice.htm>
2. International Influenza Activity (WHO): <http://gamapserver.who.int/GlobalAtlas/home.asp>

## Identified Influenza: AFIOH and WHO , 02 October 2005 - Present

### Influenza A identified by AFIOH

(H1N1) - Identified in Asia (S. Korea, Japan, Saipan), the Middle East (Qatar, Kuwait), and North America (U.S.).

(H3N2) - Identified in Asia (S. Korea, Guam, Japan, Saipan, Kuwait), the Middle East (Kuwait), Europe (Italy, Turkey, the U.K.), and North America (United States).

*WHO reported both influenza A/H3N2 and A/H1N1 viruses in the United States and Japan.*

### Influenza B identified by AFIOH

(Hong Kong) - Identified in Europe (Germany, the U.K.), the Middle East (Kuwait), South America (Peru), and North America (U. S.).

(Shanghai) - Identified in the Middle East (Kuwait), Central America (Honduras), South America (Peru), and North America (U.S.).

*Although AFIOH did not detect influenza B in Japan, WHO reported influenza B isolates in Japan.*

*Please see WHO maps below for more information on identified isolates by country. Refer to [WHO's website](#) for detailed information.*

## DoD Global Influenza Surveillance Program Background

### DoD-GEIS Influenza Surveillance Network

This program was established by the Global Emerging Infections Surveillance and Response System (GEIS) in 1997. The surveillance network includes the Air Force (global influenza surveillance established in 1976), the Navy (recruit adenovirus surveillance established in 1996), and the DoD overseas medical research facilities (i.e., the Naval Medical Research Unit located in Cairo, Egypt [NAMRU-3], the Naval Medical Research Unit located in Jakarta, Indonesia [NAMRU-2], the ).

### AFIOH Influenza Surveillance Network

In 1976, the US Air Force Medical Service began conducting routine lab-based surveillance of influenza throughout the world. Efforts were expanded when it became part of the DoD-GEIS influenza surveillance network in 1997. AFIOH manages the Air Force surveillance program that includes global influenza surveillance among DoD beneficiaries at 43 tri-service sentinel sites (including deployed locations in Iraq, Qatar, Kuwait, and Kyrgyzstan), several non-sentinel sites, two DoD overseas medical research laboratories (the Armed Forces Research Institute of Medical Sciences located in Bangkok, Thailand [AFRIMS], and the U.S. Naval Medical Research Center-Detachment [NMRC-D] located in Lima, Peru) that collect specimens from local residents in Nepal, Thailand, Argentina, Bolivia, Ecuador, Peru, and Colombia, and the US Army Center for Health Promotion and Preventive Medicine-West (CHPPM-W), that collect specimens from local residents in El Salvador, Guatemala, and Honduras.

### Sentinel Site Surveillance

Sentinel site surveillance describes specimens submitted by the 46 sentinel sites using the protocol of collecting 6-10 specimens each week from patients meeting the ILI case definition (**fever  $\geq 100.5^{\circ}\text{F}$  and cough or sore throat**) and completing the "Influenza Surveillance Questionnaire" (see [our website](#) to review the questionnaire and the Sentinel Site Surveillance Report). Two sentinel sites, Tripler Army Medical Center (AMC), located in Hawaii, and Landstuhl Regional Medical Center (RMC), located in Germany, send selected influenza positive specimens to AFIOH to be further characterized. These sites are major medical centers and have established laboratories capable of detecting influenza. Their involvement in the DoD-wide program is valued due to their mission and geographical location.

### Processing Methods

Specimens are processed in BSL-2 conditions (BSL-3 available) and tested for influenza, parainfluenza, adenovirus, enterovirus, herpes simplex virus (HSV), and respiratory syncytial virus (RSV). Specimens are held up to 14 days before a negative result is given. All influenza isolates are typed as A or B and a portion are subtyped using hemagglutination-inhibition (HI) or polymerase chain reaction (PCR) procedures. A portion of these isolates undergo molecular sequencing.

#### 2005-2006 Trivalent Influenza Vaccine Composition

##### **Northern Hemisphere**

- A/New Caledonia/20/99-like (H1N1)
- A/California/7/2004-like (H3N2)
- B/Shanghai/361/2002-like

##### **2006 Southern Hemisphere**

- A/New Caledonia/20/99-like (H1N1)
- A/California/7/2004-like (H3N2)\*
- B/Malaysia/2506/2004

#### 2006-2007 Trivalent Influenza Vaccine Composition

##### **Northern Hemisphere**

- A/New Caledonia/20/99-like (H1N1)
- A/Wisconsin/67/2005-like (H3N2)
- B/Malaysia/2506/2004-like

The two of the three components (influenza A [H3N2] and the influenza B components) in the WHO recommendation have changed from the current 2006-2006 vaccine components. See [WHO recommendation](#) report for more information.

\*The currently used vaccine virus is A/New York/55/2004

This report was prepared on **14 June 2006**. For an expanded view of the information in this report, visit our [website](#). Also available on our website is a list of previous weekly surveillance reports, program information for sentinel sites (including an educational briefing and instruction pamphlets for clinic staff), and an overview of historical data.

Please visit the [DoD-GEIS website](#) for an overview of influenza surveillance at all collaborating DoD-GEIS organizations.

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